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Access DB# 41043

SEARCH REQUEST FORM

(152)

Scientific and Technical Information Center

Requester's Full Name: _Akiba Robinson-Boyce_____ Examiner # :__76190_____
Date: _4/26/01
Art Unit: ___2163___ Phone Number 305-1340__ Serial Number: 08/994047_____
Mail Box Location: _CPK2/5B45_____ Results Format Preferred (circle): **PAPER** DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

****

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: _An Electronic Bill Payment System with Merchant Identification

Inventors (please provide full names): Garrison, David Lee; Kight, Patricia; Perkins, Brad; Ward, Cheryl Lynn; Lawson, Mary Elizabeth; Kerin, Amy Lynn

Earliest Priority Filing Date: ____12/19/97

***For Sequence Searches Only* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.**

CLASS: 705/40

04-26-01 P01:38 IN

A payment remittance processing system where:

-payment information is processed other than a received zip code to identify an 11-digit zip code for a payee

-accessing a database to locate the payee record having the payee zip code corresponding to the identified 11-digit zip code

Please focus in on a system that checks for data entry errors and if there are errors, then the system pulls the correct information from a database.

****

STAFF USE ONLY	Type of Search	Vendors and cost where applicable
Searcher: E Guilotte	NA Sequence (#)_____	STN _____
Searcher Phone #: 308 5172	AA Sequence (#)_____	Dialog ✓
Searcher Location: EK 2B-O	Structure (#) _____	Questel/Orbit _____
Date Searcher Picked Up: 4/26	Bibliographic _____	Dr.Link _____
Date Completed: 4/30	Litigation _____	Lexis/Nexis _____
Searcher Prep & Review Time: _____	Fulltext ✓ _____	Sequence Systems _____
Clerical Prep Time: _____	Patent Family _____	WWW/Internet ✓ _____

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File   9:Business & Ind[illegible]ry(R) Jul/1994-2001/Apr 26
         (c) 2001 Resp. DB Svcs.
File 623:Business Week 1985-2001/Apr W5
         (c) 2001 The McGraw-Hill Companies Inc
File 810:Business Wire 1986-1999/Feb 28
         (c) 1999 Business Wire
File 624:McGraw-Hill Publications 1985-2001/Apr 26
         (c) 2001 McGraw-Hill Co. Inc
File 636:Gale Group Newsletter DB(TM) 1987-2001/Apr 26
         (c) 2001 The Gale Group
File 621:Gale Group New Prod.Annou.(R) 1985-2001/Apr 26
         (c) 2001 The Gale Group
File 813:PR Newswire 1987-1999/Apr 30
         (c) 1999 PR Newswire Association Inc
File  20:World Reporter 1997-2001/Apr 27
         (c) 2001 The Dialog Corporation
File 634:San Jose Mercury  Jun 1985-2001/Mar 31
         (c) 2001 San Jose Mercury News

Set     Items   Description
S1      15154   ZIP()CODE? OR ZIPCODE? OR (POSTAL OR DELIVERY OR MAILPIECE?
                 OR DESTINATION OR CARRIER()ROUTE)(2N)(CODE? OR CODING OR BAR-
                COD? OR ENCOD? OR IDENTIFIER?)
S2        299   S1(3N)((11 OR ELEVEN OR 9 OR NINE)()DIGIT? ? OR ZIP()"+"()-
                (6 OR SIX OR 4 OR FOUR) OR UNIQUE? OR SPECIFIC(1W)(DESTINATION
                 OR ADDRESS) OR DELIVER?(1N)(SEQUENCE OR SEQUENTIAL?) OR EXPA-
                NDED)
S3         34   S2(5N)(IDENTIF? OR DETERMIN? OR ESTABLISH? OR CONSTRUCT? OR
                 (COME? ? OR COMING)()UP OR FIGUR?()OUT OR ASSIGN? OR DEDUCE?
                OR DEDUCING OR INFER? OR FIND? OR DISCOVER? OR APPEND? OR CRE-
                AT?)
S4    1417918   MERCHANT? OR PAYEE? OR VENDOR? OR RETAILER? OR MERCHANDISE-
                R? OR SELLER?
S5      17985   BILLER? OR BILLING()(ENTITY OR ENTITIES OR PARTY OR PARTIE-
                S) OR INVOICER?
S6    2568895   MASTER()FILE? ? OR DATABASE? OR DATABANK? OR DATA()(BASE? ?
                 OR BANK? ?) OR DB OR DBS OR DBMS OR RDBMS OR TABLE? OR COLUM-
                N?(15N)ROW? ? OR FIELD? ?
S7      17359   (S4 OR S5)(5N)S6
S8       1282   S7(5N)(ACCESS? OR QUERY? OR QUERIE? OR SEARCH? OR EXTRACT?
                OR CHECK??? OR LOOK??? OR EXAMIN?)
S9    2254446   ERROR? OR MISTAKE? OR DISCREPANC? OR EXCEPTION? OR INTEGRI-
                TY OR VALID? OR INVALID? OR ACCURA? OR INACCURA? OR CLEAN?
S10    778115   S9(5N)(CHECK? OR CATCH? OR DETECT? OR DETERMIN? OR FIND? OR
                 DISCOVER? OR TEST? OR CORRECT? OR CONTROL? OR RESOLV? OR FIX-
                ??? OR CLEAN? OR HANDL? OR REVIS?)
S11    108478   (PAYMENT? OR REMITTANCE?)(3N)(PROCESS? OR AUTOMAT? OR SYST-
                EM? OR COMPUTER? OR ELECTRONIC? OR PLATFORM? OR SOFTWARE OR S-
                OFT()WARE OR ONLINE OR ON()LINE)
S12     19515   (PAYMENT? OR REMITTANCE?)(3N)(INFORMATION OR DATA OR DETAI-
                L? ? OR INSTRUCTION? OR ADVICE? OR STUB? ?) OR (BILL??? OR IN-
                VOICE?)(3N)(STUB? ? OR TEAR()OFF OR RETURN?(2N)PORTION?)
S13         0   S3(S)(S4 OR S5)(S)(S11 OR S12)
S14         0   S3(S)(S4 OR S5) AND (S11 OR S12)
S15         0   S3(S)(S4 OR S5)
S16         5   S2(S)(S4 OR S5) AND (S11 OR S12)
S17         5   S16 NOT PY>1997
S18         5   RD S17 (unique items)
S19         0   S1(S)S8(S)S10(S)(S11 OR S12)
S20         0   S8(S)S10(S)(S11 OR S12)
S21         0   S1 AND S8(S)S10 AND (S11 OR S12)
S22         0   S8(S)S10 AND (S11 OR S12)
S23         0   S1(S)S7 AND S10 AND (S11 OR S12)
S24         2   S1(S)S7 AND S10
S25         0   S24 NOT (PY>1997 OR S18)
S26       165   S6(50N)S10(50N)(S11 OR S12)
S27         0   S6(S)S10(S)(S11 OR S12) AND S1
S28        57   S6(S)S10(S)(S11 OR S12)
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S29         46    RD S28 (unique items)
S30         13    S29 NOT PY>1997
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File 267:Finance & Banking Newsletters 2001/Apr 26
         (c) 2001 The Dialog Corp.
File 268:Banking Information Source 1981-2001/Apr W3
         (c) 2001 Bell & Howell
File 608:KR/T Bus.News. 1992-2001/Apr 27
         (c)2001 Knight Ridder/Tribune Bus News
File 609:Bridge World Markets 2000-2001/Apr 27
         (c) 2001 Bridge
File 625:American Banker Publications 1981-2001/Apr 27
         (c) 2001 American Banker
File 626:Bond Buyer Full Text 1981-2001/Apr 27
         (c) 2001 Bond Buyer

Set      Items   Description
S1        2749   ZIP()CODE? OR ZIPCODE? OR (POSTAL OR DELIVERY OR MAILPIECE?
                 OR DESTINATION OR CARRIER()ROUTE)(2N)(CODE? OR CODING OR BAR-
                 COD? OR ENCOD? OR IDENTIFIER?)
S2      359669   MERCHANT? OR PAYEE? OR VENDOR? OR RETAILER? OR MERCHANDISE-
                 R?
S3       67118   SELLER? OR BILLER? OR BILLING()(ENTITY OR ENTITIES OR PARTY
                 OR PARTIES)
S4          25   S1(5N)(S2 OR S3)
S5      246538   MASTER()FILE? ? OR DATABASE? OR DATABANK? OR DATA()(BASE? ?
                 OR BANK? ?) OR DB OR DBS OR DBMS OR RDBMS OR TABLE? OR COLUM-
                 N?(15N)ROW? ? OR FIELD? ?
S6        9754   S5(5N)(ACCESS? OR QUERY? OR QUERIE? OR SEARCH? OR EXTRACT?
                 OR CHECK??? OR LOOK??? OR EXAMIN?)
S7      297036   ERROR? OR MISTAKE? OR DISCREPANC? OR EXCEPTION? OR INTEGRI-
                 TY OR VALID? OR INVALID? OR ACCURA? OR INACCURA? OR CLEAN?
S8       80368   S7(5N)(CHECK? OR CATCH? OR DETECT? OR DETERMIN? OR FIND? OR
                 DISCOVER? OR TEST? OR CORRECT? OR CONTROL? OR RESOLV? OR FIX-
                 ??? OR CLEAN? OR HANDL? OR REVIS?)
S9       30149   (PAYMENT? OR REMITTANCE?)(3N)(PROCESS? OR AUTOMAT? OR SYST-
                 EM? OR COMPUTER? OR ELECTRONIC? OR PLATFORM? OR SOFTWARE OR S-
                 OFT()WARE OR ONLINE OR ON()LINE)
S10         74   S1(3N)((11 OR ELEVEN OR 9 OR NINE)()DIGIT? ? OR ZIP()"+"()-
                 (6 OR SIX OR 4 OR FOUR) OR UNIQUE? OR SPECIFIC(1W)(DESTINATION
                 OR ADDRESS) OR DELIVER?(1N)(SEQUENCE OR SEQUENTIAL?) OR EXPA-
                 NDED)
S11          7   S10(5N)(IDENTIF? OR DETERMIN? OR ESTABLISH? OR CONSTRUCT? -
                 OR (COME? ? OR COMING)()UP OR FIGUR?()OUT OR ASSIGN? OR DEDUC-
                 E? OR DEDUCING OR INFER? OR FIND? OR DISCOVER? OR APPEND?)
S12          0   S4 AND S6 AND S8 AND S9
S13          4   S4 AND S9
S14          4   S13 NOT PY>1997
S15          4   RD S14 (unique items)
S16       1446   (S2 OR S3 OR INVOICER?)(5N)S5
S17          0   S1(S)S16(S)S8(S)S9
S18          0   S1 AND S16 AND S8 AND S9
S19          2   S16(S)S8(S)S9
S20          1   S19 NOT (PY>1997 OR S15)
S21          2   S16(50N)S8(50N)S9
S22          2   S21 NOT (PY>1997 OR S15 OR S20)
S23          2   RD S22 (unique items)
S24          1   S9 AND S11
S25          1   S24 NOT (PY>1997 OR S15 OR S20 OR S23)
S26          1   S9(S)S10
S27         10   S9 AND S10
S28          9   S27 NOT (PY>1997 OR S15 OR S20 OR S23 OR S25)
S29          9   RD S28 (unique items)
S30          2   MOORE()BUSINESS()SERVICES
S31          0   S30 NOT (PY>1997 OR S15 OR S20 OR S23 OR S25 OR S29)
S32       6559   (PAYMENT? OR REMITTANCE?)(3N)(INFORMATION OR DATA OR DETAI-
                 L? ? OR INSTRUCTION? OR ADVICE? OR STUB? ?) OR (BILL??? OR IN-
                 VOICE?)(3N)(STUB? ? OR TEAR()OFF OR RETURN?(2N)PORTION)
S33          0   S32(S)S10
S34          5   S32 AND S10
S35          0   S34 NOT (PY>1997 OR S15 OR S20 OR S23 OR S25 OR S29)
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File  15:ABI/Inform(R) 1971-2001/Apr 25
         (c) 2001 Bell & Howell
File 275:Gale Group Computer DB(TM) 1983-2001/Apr 26
         (c) 2001 The Gale Group
File  16:Gale Group PROMT(R) 1990-2001/Apr 26
         (c) 2001 The Gale Group
File 160:Gale Group PROMT(R) 1972-1989
         (c) 1999 The Gale Group
File 148:Gale Group Trade & Industry DB 1976-2001/Apr 26
         (c)2001 The Gale Group

Set     Items   Description
S1      45936   ZIP()CODE? OR ZIPCODE? OR (POSTAL OR DELIVERY OR MAIL OR M-
             AILING OR MAILPIECE? OR DESTINATION)(2N)(CODE? OR CODING OR B-
             ARCOD? OR ENCOD? OR ID OR IDS OR IDENTIFIER? OR IDENTIFICATIO-
             N? OR NUMBER? ?)
S2    1432065   (11 OR ELEVEN)()DIGIT? ? OR ZIP()"+"()(6 OR SIX) OR UNIQUE?
              OR SPECIFIC(1W)(DESTINATION OR ADDRESS) OR (DELIVER? OR CARR-
             IER?)(2N)(SEQUENCE OR SEQUENTIAL? OR ROUTE?) OR EXPANDED
S3        573   S1(3N)S2
S4    4891032   IDENTIF? OR DETERMIN? OR ESTABLISH? OR CONSTRUCT? OR (COME?
              ? OR COMING)()UP OR FIGUR?()OUT OR ASSIGN? OR DEDUCE? OR DED-
             UCING OR INFER?
S5         81   S3(7N)S4
S6    1838267   MERCHANT? OR PAYEE? OR VENDOR? OR RETAILER? OR MERCHANDISE-
             R?
S7     258565   SELLER? OR BILLER? OR BILLING()(ENTITY OR ENTITIES OR PARTY
              OR PARTIES)
S8    2223000   MASTER()FILE? ? OR DATABASE? OR DATABANK? OR DATA()(BASE? ?
              OR BANK? ?) OR DB OR DBS OR DBMS OR RDBMS OR TABLE? OR COLUM-
             N?(15N)ROW? ?
S9    6310734   ACCESS? OR QUERY? OR QUERIE? OR SEARCH? OR EXTRACT? OR CHE-
             CK??? OR LOOK??? OR EXAMIN?
S10      1756   S7(5N)S8
S11     904927   ERROR? OR MISTAKE? OR DISCREPANC? OR EXCEPTION? ? OR INTEG-
             RITY
S12   1403510   VALID? OR INVALID? OR ACCURATE? OR ACCURAC? OR INACCURA? OR
              CLEAN?
S13    139032   (S10 OR S11)(5N)(CHECK? OR CATCH? OR DETECT? OR DETERMIN? -
             OR FIND? OR DISCOVER? OR TEST? OR CORRECT? OR CONTROL? OR RES-
             OLV? OR FIX??? OR CLEAN? OR HANDL? OR REVIS?)
S14    109516   (PAYMENT? OR REMITTANCE?)(3N)(PROCESS? OR AUTOMAT? OR SYST-
             EM? OR COMPUTER? OR ELECTRONIC? OR PLATFORM? OR SOFTWARE OR S-
             OFT()WARE OR ONLINE OR ON()LINE)
S15          0   S5(S)(S6 OR S7)(50N)S14
S16          0   S5(S)(S6 OR S7) AND S14
S17          2   S3(S)(S6 OR S7) AND S14
S18          2   S17 NOT PY>1997
S19       2452   S1(S)(S6 OR S7)
S20          0   S19(S)S10(S)S13(S)S14
S21          4   S19(S)S8 AND S13 AND S14
S22          4   S21 NOT (PY>1997 OR S18)
S23          3   RD S22 (unique items)
S24          2   S3(S)(S6 OR S7)AND (S10 OR S13)
S25          2   S24 NOT (PY>1997 OR S18 OR S23)
S26          2   RD S25 (unique items)
S27      51837   (S6 OR S7)(5N)S8
S28         90   S27(S)S1
S29          1   S28(S)(S13 OR S14)
S30         11   S28 AND (S13 OR S14)
S31          9   S30 NOT (PY>1997 OR S18 OR S23 OR S26)
S32          8   RD S31 (unique items)
S33          4   S13(S)S14(S)S27
S34          0   S33 NOT (PY>1997 OR S18 OR S23 OR S26 OR S32)
S35         21   S19(S)S14
S36         11   S35 NOT (PY>1997 OR S18 OR S23 OR S26 OR S32)
S37          8   RD S36 (unique items)
```

File 348:EUROPEAN PATENTS 1978-2001/Apr W03
(c) 2001 European Patent Office
File 349:PCT Fulltext 1983-2001/UB=20010419, UT=20010405
(c) 2001 WIPO/MicroPat

Set	Items	Description
S1	7015	ZIP()CODE? OR ZIPCODE? OR (POSTAL OR DELIVERY OR MAILPIECE? OR DESTINATION OR CARRIER()ROUTE)(2N)(CODE? OR CODING OR BARCOD? OR ENCOD? OR IDENTIFIER?)
S2	172	S1(3N)((11 OR ELEVEN OR 9 OR NINE)()DIGIT? ? OR ZIP()"+"()(6 OR SIX OR 4 OR FOUR) OR UNIQUE? OR SPECIFIC(1W)(DESTINATION OR ADDRESS) OR DELIVER?(1N)(SEQUENCE OR SEQUENTIAL?) OR EXPANDED)
S3	75	S2(5N)(IDENTIF? OR DETERMIN? OR ESTABLISH? OR CONSTRUCT? OR (COME? ? OR COMING)()UP OR FIGUR?()OUT OR ASSIGN? OR DEDUCE? OR DEDUCING OR INFER? OR FIND? OR DISCOVER? OR APPEND? OR CREAT?)
S4	13901	MERCHANT? OR PAYEE? OR VENDOR? OR RETAILER? OR MERCHANDISER? OR SELLER?
S5	1078	BILLER? OR BILLING()(ENTITY OR ENTITIES OR PARTY OR PARTIES) OR INVOICER?
S6	659834	MASTER()FILE? ? OR DATABASE? OR DATABANK? OR DATA()(BASE? ? OR BANK? ?) OR DB OR DBS OR DBMS OR RDBMS OR TABLE? OR COLUMN?(15N)ROW? ? OR FIELD? ?
S7	1236	(S4 OR S5)(5N)S6
S8	354	S7(5N)(ACCESS? OR QUERY? OR QUERIE? OR SEARCH? OR EXTRACT? OR CHECK??? OR LOOK??? OR EXAMIN?)
S9	437792	ERROR? OR MISTAKE? OR DISCREPANC? OR EXCEPTION? OR INTEGRITY OR VALID? OR INVALID? OR ACCURA? OR INACCURA? OR CLEAN?
S10	240518	S9(5N)(CHECK? OR CATCH? OR DETECT? OR DETERMIN? OR FIND? OR DISCOVER? OR TEST? OR CORRECT? OR CONTROL? OR RESOLV? OR FIX???? OR CLEAN? OR HANDL? OR REVIS?)
S11	2660	(PAYMENT? OR REMITTANCE?)(3N)(PROCESS? OR AUTOMAT? OR SYSTEM? OR COMPUTER? OR ELECTRONIC? OR PLATFORM? OR SOFTWARE OR SOFT()WARE OR ONLINE OR ON()LINE)
S12	1888	(PAYMENT? OR REMITTANCE?)(3N)(INFORMATION OR DATA OR DETAIL? ? OR INSTRUCTION? OR ADVICE? OR STUB? ?) OR (BILL??? OR INVOICE?)(3N)(STUB? ? OR TEAR()OFF OR RETURN?(2N)PORTION?)
S13	1	S3(S)(S4 OR S5)(S)(S11 OR S12)
S14	3	S2(S)(S4 OR S5)(S)(S11 OR S12)
S15	2	S1(S)S8(S)S10(S)(S11 OR S12)
S16	1	S8(S)S10(S)(S11 OR S12)
S17	3	S1(S)S7(S)S10(S)(S11 OR S12)
S18	8	S1(S)S7(S)S10
S19	61	S6(S)S10(S)(S11 OR S12)
S20	2	S19(60N)S1
S21	12	S13 OR S14 OR S15 OR S16 OR S17 OR S18 OR S20
S22	2021	*deleted* IC=(G06F-015/21 OR G06F-019/00)
S23	2	S22 AND S7(S)S10
S24	2	S22 AND S2
S25	1	S22 AND S1(S)S10
S26	2021	IC=(G06F-015/21 OR G06F-019/00)
S27	28	S26 AND S7
S28	4	S27 AND S1
S29	8	S23 OR S24 OR S25 OR S28

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File  77:Conference Papers Index 1973-2001/Mar
         (c) 2001 Cambridge Sci Abs
File  35:Dissertation Abstracts Online 1861-2001/May
         (c) 2001 UMI
File 583:Gale Group Globalbase(TM) 1986-2001/Apr 24
         (c) 2001 The Gale Group
File  65:Inside Conferences 1993-2001/Apr W4
         (c) 2001 BLDSC all rts. reserv.
File   2:INSPEC 1969-2001/Apr W5
         (c) 2001 Institution of Electrical Engineers
File 233:Internet & Personal Comp. Abs. 1981-2001/Apr
         (c) 2001 Info. Today Inc.
File  99:Wilson Appl. Sci & Tech Abs 1983-2001/Mar
         (c) 2001 The HW Wilson Co.
File 473:FINANCIAL TIMES ABSTRACTS 1998-2001/APR 02
         (c) 2001 THE NEW YORK TIMES
File 474:New York Times Abs 1969-2001/Apr 28
         (c) 2001 The New York Times
File 475:Wall Street Journal Abs 1973-2001/Apr 27
         (c) 2001 The New York Times
File 139:EconLit 1969-2001/Apr
         (c) 2001 American Economic Association

Set     Items   Description
S1       1173   ZIP()CODE? OR ZIPCODE? OR (POSTAL OR DELIVERY OR MAILPIECE?
                 OR DESTINATION OR CARRIER()ROUTE)(2N)(CODE? OR CODING OR BAR-
                COD? OR ENCOD? OR IDENTIFIER?)
S2         71   S1(3N)((11 OR ELEVEN OR 9 OR NINE)()DIGIT? ? OR ZIP()"+"()-
                (6 OR SIX OR 4 OR FOUR) OR UNIQUE? OR SPECIFIC(1W)(DESTINATION
                 OR ADDRESS) OR DELIVER?(1N)(SEQUENCE OR SEQUENTIAL?) OR EXPA-
                NDED)
S3          7   S2(5N)(IDENTIF? OR DETERMIN? OR ESTABLISH? OR CONSTRUCT? OR
                 (COME? ? OR COMING)()UP OR FIGUR?()OUT OR ASSIGN? OR DEDUCE?
                OR DEDUCING OR INFER? OR FIND? OR DISCOVER? OR APPEND? OR CRE-
                AT?)
S4     141248   MERCHANT? OR PAYEE? OR VENDOR? OR RETAILER? OR MERCHANDISE-
                R? OR SELLER?
S5        738   BILLER? OR BILLING()(ENTITY OR ENTITIES OR PARTY OR PARTIE-
                S) OR INVOICER?
S6    1719311   MASTER()FILE? ? OR DATABASE? OR DATABANK? OR DATA()(BASE? ?
                 OR BANK? ?) OR DB OR DBS OR DBMS OR RDBMS OR TABLE? OR COLUM-
                N?(15N)ROW? ? OR FIELD? ?
S7      11657   (S4 OR S5)(5N)S6
S8        219   S7(5N)(ACCESS? OR QUERY? OR QUERIE? OR SEARCH? OR EXTRACT?
                OR CHECK??? OR LOOK??? OR EXAMIN?)
S9    1141026   ERROR? OR MISTAKE? OR DISCREPANC? OR EXCEPTION? OR INTEGRI-
                TY OR VALID? OR INVALID? OR ACCURA? OR INACCURA? OR CLEAN?
S10    286059   S9(5N)(CHECK? OR CATCH? OR DETECT? OR DETERMIN? OR FIND? OR
                 DISCOVER? OR TEST? OR CORRECT? OR CONTROL? OR RESOLV? OR FIX-
                ??? OR CLEAN? OR HANDL? OR REVIS?)
S11       7627   (PAYMENT? OR REMITTANCE?)(3N)(PROCESS? OR AUTOMAT? OR SYST-
                EM? OR COMPUTER? OR ELECTRONIC? OR PLATFORM? OR SOFTWARE OR S-
                OFT()WARE OR ONLINE OR ON()LINE)
S12       1306   (PAYMENT? OR REMITTANCE?)(3N)(INFORMATION OR DATA OR DETAI-
                L? ? OR INSTRUCTION? OR ADVICE? OR STUB? ?) OR (BILL??? OR IN-
                VOICE?)(3N)(STUB? ? OR TEAR()OFF OR RETURN?(2N)PORTION?)
S13          0   S3 AND (S4 OR S5) AND (S11 OR S12)
S14          0   S2 AND (S4 OR S5) AND (S11 OR S12)
S15          0   S1 AND S8 AND S10 AND (S11 OR S12)
S16          0   S8 AND S10 AND (S11 OR S12)
S17          0   S1 AND S7 AND S10 AND (S11 OR S12)
S18          0   S1 AND S7 AND S10
S19          5   S6 AND S10 AND (S11 OR S12)
S20          3   S19 NOT PY>1997
S21          3   RD S20 (unique items)
S22          0   S2 AND (S11 OR S12)
S23          0   S1 AND (S11 OR S12)
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File 278:Microcomputer Software Guide 2001/Apr
(c) 2001 Reed Elsevier Inc.
File 256:SoftBase:Reviews,Companies&Prods. 85-2001/Mar
(c)2001 Info.Sources Inc

Set	Items	Description
S1	315	ZIP()CODE? OR ZIPCODE? OR (POSTAL OR DELIVERY OR MAILPIECE? OR DESTINATION OR CARRIER()ROUTE)(2N)(CODE? OR CODING OR BARCOD? OR ENCOD? OR IDENTIFIER?)
S2	9	S1(3N)((11 OR ELEVEN OR 9 OR NINE)()DIGIT? ? OR ZIP()"+"()(6 OR SIX OR 4 OR FOUR) OR UNIQUE? OR SPECIFIC(1W)(DESTINATION OR ADDRESS) OR DELIVER?(1N)(SEQUENCE OR SEQUENTIAL?) OR EXPANDED)
S3	3	S2(7N)(IDENTIF? OR DETERMIN? OR ESTABLISH? OR CONSTRUCT? OR (COME? ? OR COMING)()UP OR FIGUR?()OUT OR ASSIGN? OR DEDUCE? OR DEDUCING OR INFER? OR FIND? OR DISCOVER? OR APPEND? OR CREAT?)
S4	20506	MERCHANT? OR PAYEE? OR VENDOR? OR RETAILER? OR MERCHANDISER? OR SELLER?
S5	45	BILLER? OR BILLING()(ENTITY OR ENTITIES OR PARTY OR PARTIES) OR INVOICER?
S6	21740	MASTER()FILE? ? OR DATABASE? OR DATABANK? OR DATA()(BASE? ? OR BANK? ?) OR DB OR DBS OR DBMS OR RDBMS OR TABLE? OR COLUMN?(15N)ROW? ? OR FIELD? ?
S7	610	(S4 OR S5)(7N)S6
S8	62	S7(5N)(ACCESS? OR QUERY? OR QUERIE? OR SEARCH? OR EXTRACT? OR CHECK??? OR LOOK??? OR EXAMIN?)
S9	8086	ERROR? OR MISTAKE? OR DISCREPANC? OR EXCEPTION? OR INTEGRITY OR VALID? OR INVALID? OR ACCURA? OR INACCURA? OR CLEAN?
S10	2417	S9(5N)(CHECK? OR CATCH? OR DETECT? OR DETERMIN? OR FIND? OR DISCOVER? OR TEST? OR CORRECT? OR CONTROL? OR RESOLV? OR FIX??? OR CLEAN? OR HANDL? OR REVIS?)
S11	563	(PAYMENT? OR REMITTANCE?)(3N)(PROCESS? OR AUTOMAT? OR SYSTEM? OR COMPUTER? OR ELECTRONIC? OR PLATFORM? OR SOFTWARE OR SOFT()WARE OR ONLINE OR ON()LINE)
S12	109	(PAYMENT? OR REMITTANCE?)(3N)(INFORMATION OR DATA OR DETAIL? ? OR INSTRUCTION? OR ADVICE? OR STUB? ?) OR (BILL??? OR INVOICE?)(3N)(STUB? ? OR TEAR()OFF OR RETURN?(2N)PORTION?)
S13	0	S3 AND (S4 OR S5) AND (S11 OR S12)
S14	0	S2 AND (S4 OR S5) AND (S11 OR S12)
S15	0	S1 AND (S4 OR S5) AND (S11 OR S12)
S16	0	S1 AND S8 AND S10 AND (S11 OR S12)
S17	0	S8 AND S10 AND (S11 OR S12)
S18	20	(S8 OR S10) AND (S11 OR S12)
S19	16	S18 NOT PY>1997
S20	0	S1 AND S7 AND S10 AND (S11 OR S12)
S21	0	S1 AND (S7 OR S10) AND (S11 OR S12)
S22	0	S1 AND S7 AND S10
S23	0	S7 AND S10 AND (S11 OR S12)
S24	0	S1 AND S10 AND (S11 OR S12)
S25	7	S6 AND S10 AND (S11 OR S12)
S26	0	S25 NOT (PY>1997 OR S19)

File 350:Derwent WPIX 19[illegible]2001/UD,UM &UP=200123
(c) 2001 Derwent Info Ltd
File 347:JAPIO Oct 1976-2000/Dec(UPDATED 010412)
(c) 2001 JPO & JAPIO

Set	Items	Description
S1	2221	ZIP()CODE? OR ZIPCODE? OR (POSTAL OR DELIVERY OR MAILPIECE? OR DESTINATION OR CARRIER()ROUTE)(2N)(CODE? OR CODING OR BARCOD? OR ENCOD? OR IDENTIFIER?)
S2	26	S1(3N)((11 OR ELEVEN OR 9 OR NINE)()DIGIT? ? OR ZIP()"+"()(6 OR SIX OR 4 OR FOUR) OR UNIQUE? OR SPECIFIC(1W)(DESTINATION OR ADDRESS) OR DELIVER?(1N)(SEQUENCE OR SEQUENTIAL?) OR EXPANDED)
S3	10	S2(7N)(IDENTIF? OR DETERMIN? OR ESTABLISH? OR CONSTRUCT? OR (COME? ? OR COMING)()UP OR FIGUR?()OUT OR ASSIGN? OR DEDUCE? OR DEDUCING OR INFER? OR FIND? OR DISCOVER? OR APPEND? OR CREAT?)
S4	3069	MERCHANT? OR PAYEE? OR VENDOR? OR RETAILER? OR MERCHANDISER? OR SELLER?
S5	60	BILLER? OR BILLING()(ENTITY OR ENTITIES OR PARTY OR PARTIES) OR INVOICER?
S6	826730	MASTER()FILE? ? OR DATABASE? OR DATABANK? OR DATA()(BASE? ? OR BANK? ?) OR DB OR DBS OR DBMS OR RDBMS OR TABLE? OR COLUMN?(15N)ROW? ? OR FIELD? ?
S7	138	(S4 OR S5)(7N)S6
S8	29	S7(5N)(ACCESS? OR QUERY? OR QUERIE? OR SEARCH? OR EXTRACT? OR CHECK??? OR LOOK??? OR EXAMIN?)
S9	1303598	ERROR? OR MISTAKE? OR DISCREPANC? OR EXCEPTION? OR INTEGRITY OR VALID? OR INVALID? OR ACCURA? OR INACCURA? OR CLEAN?
S10	629908	S9(5N)(CHECK? OR CATCH? OR DETECT? OR DETERMIN? OR FIND? OR DISCOVER? OR TEST? OR CORRECT? OR CONTROL? OR RESOLV? OR FIX??? OR CLEAN? OR HANDL? OR REVIS?)
S11	2654	(PAYMENT? OR REMITTANCE?)(3N)(PROCESS? OR AUTOMAT? OR SYSTEM? OR COMPUTER? OR ELECTRONIC? OR PLATFORM? OR SOFTWARE OR SOFT()WARE OR ONLINE OR ON()LINE)
S12	1122	(PAYMENT? OR REMITTANCE?)(3N)(INFORMATION OR DATA OR DETAIL? ? OR INSTRUCTION? OR ADVICE? OR STUB? ?) OR (BILL??? OR INVOICE?)(3N)(STUB? ? OR TEAR()OFF OR RETURN?(2N)PORTION?)
S13	0	S3 AND (S4 OR S5) AND (S11 OR S12)
S14	0	S2 AND (S4 OR S5) AND (S11 OR S12)
S15	2	S1 AND (S4 OR S5) AND (S11 OR S12)
S16	0	S8 AND S10 AND (S11 OR S12)
S17	1	S7 AND S10 AND (S11 OR S12)
S18	11	S1 AND (S11 OR S12)
S19	12	S6 AND S10 AND (S11 OR S12)
S20	23	S15 OR S17 OR S18 OR S19

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PASSWORD:
TERMINAL (ENTER 1, 2, 3, OR ?):2

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NEWS 3	Feb 06	Engineering Information Encompass files have new names
NEWS 4	Feb 16	TOXLINE no longer being updated
NEWS 5	Apr 23	Search Derwent WPINDEX by chemical structure
NEWS 6	Apr 23	PRE-1967 REFERENCES NOW SEARCHABLE IN CAPLUS AND CA

NEWS EXPRESS	April 18 CURRENT WINDOWS VERSION IS V6.0, CURRENT MACINTOSH VERSION IS V5.0C (ENG) AND V5.0JB (JP), AND CURRENT DISCOVER FILE IS DATED 04/06
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FILE 'HOME' ENTERED AT 09:27:19 ON 26 APR 2001

=> file uspatfull europatfull japio inpadoc inspec patosep patoswo

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	0.30	0.30

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FILE 'PATOSWO' ENTERED AT 09:28:19 ON 26 APR 2001
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=> s (correct? or fix?)(s)(data(w)entr?(w)(errors or mistakes))

   2 FILES SEARCHED...
PROXIMITY OPERATOR LEVEL NOT CONSISTENT WITH
FIELD CODE - 'AND' OPERATOR ASSUMED 'FIX?)(S)(DATA'
   6 FILES SEARCHED...
L1   41 (CORRECT? OR FIX?)(S)(DATA(W) ENTR?(W)(ERRORS OR MISTAKES))

=> s l1 and (pay? or debit?)(p)(zip(w)code)

PROXIMITY OPERATOR LEVEL NOT CONSISTENT WITH
FIELD CODE - 'AND' OPERATOR ASSUMED 'DEBIT?)(P)(ZIP'
L2   0 L1 AND (PAY? OR DEBIT?)(P)(ZIP(W) CODE)

=> s (pay? or debit?)(p)(zip(w)code)

PROXIMITY OPERATOR LEVEL NOT CONSISTENT WITH
FIELD CODE - 'AND' OPERATOR ASSUMED 'DEBIT?)(P)(ZIP'
L3   280 (PAY? OR DEBIT?)(P)(ZIP(W) CODE)

=> l1 or l3

L1 IS NOT A RECOGNIZED COMMAND
The previous command name entered was not recognized by the system.
For a list of commands available to you in the current file, enter
"HELP COMMANDS" at an arrow prompt (=>).

=> s l1 or l3

L4   321 L1 OR L3

=> s l1 and l3

L5   0 L1 AND L3

=> s (pay? or debit?)(p)((eleven or 11)(w)digit(w)zip(w)code)

   3 FILES SEARCHED...
PROXIMITY OPERATOR LEVEL NOT CONSISTENT WITH
FIELD CODE - 'AND' OPERATOR ASSUMED 'DEBIT?)(P)('
L6   5 (PAY? OR DEBIT?)(P)((ELEVEN OR 11)(W) DIGIT(W) ZIP(W) CODE)

=> d 1

L6   ANSWER 1 OF 5 EUROPATFULL COPYRIGHT 2001 WILA

PATENT APPLICATION - PATENTANMELDUNG - DEMANDE DE BREVET

AN   807473 EUROPATFULL ED 19971130 EW 199747 FS OS
TIEN   Selective printing of postnet barcode for inserting system.
TIDE   Selektives Drucken eines "Postnet"-Strichcodes fuer Einfuegungssystem.
TIFR   Impression selective d'un code a barres "Postnet" pour un systeme
       d'insertion.
IN   Bodie, Kevin W., 22 Green Pasture Road, Bethel, CT 06801, US;
       Churchill, Jim, 17 Butterfield Road, Newtown, CT 06470, US;
       Gagliardi, Michael A., 68 Duck Pond Corssing, Plantsville, CT 06479,
US;

[redacted]

Gottlieb, Robe[redacted] K., 47 Housatonic Drive, Milfo[redacted] CT 06460, US
PA PITNEY BOWES [redacted], World Headquarters One Elmc[redacted], Stamford Connecticut
06926-0700, US
SO Wila-EPZ-1997-H47-T3a
DS R DE; R FR; R GB
PIT EPA2 EUROPAEISCHE PATENTANMELDUNG
PI EP 807473 A2 19971119
OD 19971119
AI EP 1997-107450 19970506
PRAI US 1996-646186 19960507
IC ICM B07C001-00

=> d kwic 1

L6 ANSWER 1 OF 5 EUROPATFULL COPYRIGHT 2001 WILA
DETDEN. . . This barcode sequence can be presently seen on certain types of mail pieces today, particularly business reply and courtesy reply (**payment**) envelopes.
There . . . mail presort discount. In order for a mailpiece to qualify for the discount, it generally must include a 9 or **11 digit zip code**. However, in certain cases an address does not include such a zip code. The mail pieces that do not contain. . .

=> d kwic 2

L6 ANSWER 2 OF 5 EUROPATFULL COPYRIGHT 2001 WILA
DETDEN The present invention relates to advanced postage **payment** systems and, more particularly, to advanced postage **payment** systems having pre-computed postage **payment** information.
Typical . . . block is an image printed on a mail piece that includes the digital token used to provide evidence of postage **payment**.
The Postal Data may be printed both in encrypted and unencrypted form in the postal revenue block. Postal Data serves. . .
Prior open metering system designs use the destination postal code (in U.S.A. this is the **11 digit ZIP code**) to identify the address. This approach has several problems. For international mail, the destination postal code may not exist. If. . .
The . . . and verification process for an open metering system. An open metering system must include delivery address information, such as the **11-digit ZIP code**, in the calculation of digital tokens to protect the system from a fraudulent copying of the tokens.
It . . . large changing data base. The method of the present invention provides security that prevents tampering and false evidence of postage **payment** and provides the ability to do batch processing of digital tokens.
The . . . 12. Modem 29 may be used for communicating with a Postal Service or a postal authenticating vendor for recharging funds (**debit** or credit). In an alternate embodiment the modem may be located in PCMCIA card 30.

=> d 2

L6 ANSWER 2 OF 5 EUROPATFULL COPYRIGHT 2001 WILA

PATENT APPLICATION - [redacted]ENTANMELDUNG - DEMANDE DE BREV[redacted]

AN 710930 EUROPATFULL UP 19970408 EW 199619 FS OS STA R
TIEN Mail processing system with unique mailpiece authorization assigned in advance of mailpieces entering carrier service mail processing stream.
TIDE Postverarbeitungssystem mit einer Poststueckkennzeichnung zugeordnet vor
dem Eintritt von Poststuecken in den Bearbeitungsstrom eines Posttraegerdienstes.
TIFR Systeme pour traiter des envois postaux avec authorisation des envois par un signe distinctif avant que les envois entrent dans le service circulataire d'un service porteur des envois.
IN Pintsov, Leon A., 365 Mountain Road, West Hartford, CT 06107, US;
Cordery, Robert A., 11 1/2 Jeanette Street, Danbury, CT 06811, US
PA PITNEY BOWES INC., World Headquarters One Elmcroft, Stamford Connecticut
06926-0700, US
SO Wila-EPZ-1996-H19-T2a
DS R DE; R DK; R ES; R FR; R GB; R IE; R IT; R NL; R SE
PIT EPA2 EUROPAEISCHE PATENTANMELDUNG
PI EP 710930 A2 19960508
OD 19960508
AI EP 1995-115638 19951004
PRAI US 1994-317515 19941004
IC ICM G07B017-00

=> s identif?(4w)((eleven or 11)(w)digit(w)zip(w)code)

2 FILES SEARCHED...
L11 0 IDENTIF?(4W)((ELEVEN OR 11)(W) DIGIT(W) ZIP(W) CODE)

=> s identif?(s)((eleven or 11)(w)digit(w)zip(w)code)

PROXIMITY OPERATOR LEVEL NOT CONSISTENT WITH
FIELD CODE - 'AND' OPERATOR ASSUMED 'IDENTIF?(S)('
3 FILES SEARCHED...
L12 18 IDENTIF?(S)((ELEVEN OR 11)(W) DIGIT(W) ZIP(W) CODE)

=> s identif?(s)((eleven or 11)(w)digit(w)zip(w)code)(s)(pay?)

2 FILES SEARCHED...
PROXIMITY OPERATOR LEVEL NOT CONSISTENT WITH
FIELD CODE - 'AND' OPERATOR ASSUMED 'IDENTIF?(S)('
PROXIMITY OPERATOR LEVEL NOT CONSISTENT WITH
FIELD CODE - 'AND' OPERATOR ASSUMED 'CODE)(S)(PAY?'
L13 0 IDENTIF?(S)((ELEVEN OR 11)(W) DIGIT(W) ZIP(W) CODE)(S)(PAY?)

=> d l12 1

L12 ANSWER 1 OF 18 USPATFULL
AN 2001:19532 USPATFULL
TI One number, intelligent call processing system
IN Shaffer, James D., Rancho Santa Fe, CA, United States
Moore, George G., Great Falls, VA, United States
PA Murex Securities, Ltd., Douglas, United Kingdom (non-U.S. corporation)
PI US 6185290 20010206
AI US 2000-477181 20000104 (9)
RLI Continuation of Ser. No. US 1998-211475, filed on 14 Dec 1998
Continuation of Ser. No. US 1996-748192, filed on 12 Nov 1996, now patented, Pat. No. US 5901214
PRAI US 1996-19526 19960606 (60)
DT Utility
LN.CNT 3465

L6 ANSWER 4 OF 5 EUROPATFULL COPYRIGHT 2001 WILA

PATENT APPLICATION

AN 780807 EUROPATFULL ED 19970710 EW 199726 FS OS
TIEN A method of mapping destination addresses for use in calculating digital
tokens.
IN Lee, David K., 12 Alpine Road, Monroe, CT 06468, US
PA PITNEY BOWES INC., World Headquarters One Elmcroft, Stamford Connecticut
06926-0700, US
PAN 244955
AG Avery, Stephen John et al, Hoffmann, Eitle & Partner, Patent- und Rechtsanwaelte, Arabellastrasse 4, 81925 Muenchen, DE
AGN 47695
OS ESP1997035 EP 0780807 A2 970625
SO Wila-EPZ-1997-H26-T2a
DT Patent
LA Anmeldung in Englisch; Veroeffentlichung in Englisch
DS R DE; R FR; R GB
PIT EPA2 EUROPAEISCHE PATENTANMELDUNG
PI EP 780807 A2 19970625
OD 19970625
AI EP 1996-120503 19961219
PRAI US 1995-574746 19951219
IC ICM G07B017-02
FA AG
ABEN; DETDEN; CLMEN
GI
GIS 2591
PGC 22
CLMN 6
ABEN A method of creating an open system digital token includes sending predetermined information to a digital token generation process. A set of characters are randomly selected from the predetermined information. A mapping algorithm is applied to the selected characters to facilitate a character recognition process and a random number algorithm is applied to the mapped selected characters to obtain a random number. A digital token is calculated using the random number. The predetermined information may be delivery address information in the form of an ASCII string which is reduced by eliminating certain non-alphanumeric characters from the ASCII string. Certain characters can be modified to facilitate OCR processing. A plurality of characters are randomly selected from the reduced ASCII string to determine random positions in the reduced ASCII string. The ASCII code of the selected characters are mapped to the code of a reduced space using a mapping table. The mapped delivery address information is included in a digital token calculation of the digital token generation process.

DETDEN The present invention relates to advanced postage **payment** systems and, more particularly, to advanced postage **payment** systems having pre-computed postage **payment** information.

The present application is related to the following U.S. Patent Applications Serial Nos. [Attorney Dockets E-415, E-416, E-418, E-419, E-420, E-421, E-444, E-452, E-463 and E-466], each filed concurrently

herewith, and assigned to the assignee of the present invention.

Postage metering systems are being developed which employ digital printers to print encrypted information on a mailpiece. Such metering systems are presently categorized by the United States Postal Service as either closed systems or open systems. In a closed system, the system functionality is solely dedicated to metering activity. A closed system metering device includes a dedicated printer securely coupled to a metering or accounting function. In a closed system, since the printer is securely coupled and dedicated to the meter, printing cannot take place without accounting. In an open metering system the system functionality is not dedicated solely to metering activity. An open system metering device includes a printer that is not dedicated to the metering activity, thus freeing system functionality for multiple and diverse uses in addition to the metering activity. An open system metering device is a postage evidencing device (PED) with a non-dedicated printer that is not securely coupled to a secure accounting module.

Typically, the postage value for a mailpiece is encrypted together with other data to generate a digital token which is then used to generate a postage indicia that is printed on the mailpiece. A digital token is encrypted information that authenticates the information imprinted on a mailpiece including postal value. Examples of systems for generating and using digital tokens are described in U.S. Patent No. 4,757,537, 4,831,555, 4,775,246, 4,873,645 and 4,725,718, the entire disclosures of which are hereby incorporated by reference. These systems employ an encryption algorithm to encrypt selected information to generate at least one digital token for each mailpiece. The encryption of the information provides security to prevent altering of the printed information in a manner such that any misuse of the tokens is detectable by appropriate verification procedures.

Typical information which may be encrypted as part of a digital token includes origination postal code, vendor identification, data identifying the PED, piece count, postage amount, date, and, for an open system, destination postal code. These items of information, collectively referred to as Postal Data, when encrypted with a secret key and printed on a mail piece provide a very high level of security which enables the detection of any attempted modification of a postal revenue block or a destination postal code. A postal revenue block is an image printed on a mail piece that includes the digital token used to provide evidence of postage **payment**. The Postal Data may be printed both in encrypted and unencrypted form in the postal revenue block. Postal Data serves as an input to a Digital Token Transformation which is a cryptographic transformation computation that utilizes a secret key to produce digital tokens. Results of the Digital Token Transformation, i.e., digital tokens, are available only after completion of the Accounting Process.

Digital tokens are utilized in both open and closed metering systems. However, for open metering systems, the non-dedicated printer may be used to print other information in addition to the postal revenue block and may be used in activity other than postage evidencing. In an open system PED, addressee information is included in the Postal Data which is used in the generation of the digital tokens. Such use of the addressee information creates a secure link between the mailpiece and the postal revenue block and allows unambiguous authentication of the mail piece.

Prior open metering system designs use the destination postal code (in U.S.A. this is the **11 digit Zip code**) to identify the address. This approach has several problems. For international mail, a destination postal code may not exist. If one does exist, a mailer may not have access to it. If the mailer guesses an incorrect postal code, the cost of returning and correcting the mail is very high for the postal service. The destination postal code does not identify the recipient of the mail, so mail can be sent fraudulently to several people in the same building.

The present invention provides a method of mapping destination addresses for use in a token generation process for an open metering system, such as a PC-based metering system that comprises a PC, a plug -in peripheral as a vault to store postage funds and a non-secure and non-dedicated printer to generate digital tokens and later print evidence of postage on envelopes and labels at the same time it prints a recipient address.

An open metering system must include delivery address information, such as the 11-digit ZIP, in the calculation of digital tokens to protect the system from a fraudulent copying of the tokens. In accordance with the present invention, a PC-based metering system supplies the entire delivery address to the vault. The vault selects a set of characters randomly from the delivery address characters such that it would be difficult to guess outside the vault which characters have been selected. The vault then applies mapping to the selected characters to reduce the amount of data further. The mapping is specially designed to help the character recognition process for the verification system but maintains the integrity of the open metering system.

In accordance with the present invention a method of creating an open system digital token includes sending predetermined information to a digital token generation process. A set of characters are randomly selected from the predetermined information. A mapping algorithm is applied to the selected characters to facilitate a character recognition process and a random number algorithm is applied to the mapped selected characters to obtain a random number. A digital token is calculated using the random number. The predetermined information may be delivery address information in the form of an ASCII string which is reduced by eliminating certain non-alphanumeric characters from the ASCII string. Certain characters can be modified to facilitate OCR processing. A plurality of characters are randomly selected from the reduced ASCII string to determine random positions in the reduced ASCII string. The ASCII code of the selected characters are mapped to the code of a reduced space using a mapping table. The mapped delivery address information is included in a digital token calculation of the digital token generation process.

The method of the present invention provides security that prevents tampering and false evidence of postage **payment** and provides the ability to do batch processing of digital tokens.

The above and other objects and advantages of the present invention will be apparent upon consideration of the following detailed description, taken in conjunction with accompanying drawings, in which like reference

characters refer to like parts throughout, and in which:

Fig. 1 is a block diagram of a PC-based metering system in which the present invention operates;

Fig. 2 is a schematic block diagram of the PC-based metering system of Fig. 1 including a removable vault card and a DLL in the PC;

Fig. 3 is a schematic block diagram of the DLL in the PC-based metering system of Fig. 1 including interaction with the vault to issue and store digital tokens;

Fig. 4 (4A-4B) is a flow chart of the address mapping for a digital token generation process in accordance with the present invention;

Fig. 5 is a representation the assignment of bits of a random number to select a random number of characters from an address string used in the address mapping of Fig. 4; and

Fig. 6 is an representation of indicia generated and printed by the PC-based metering system of Fig. 1.

In describing the present invention, reference is made to the drawings, wherein there is seen in Figs. 1-3 an open system PC-based postage meter, also referred to herein as a PC meter system, generally referred to as 10, in which the present invention performs the digital token process. PC meter system 10 includes a conventional personal computer configured to operate as a host to a removable metering device or electronic vault, generally referred to as 20, in which postage funds are stored. PC meter system 10 uses the personal computer and its printer to print postage on envelopes at the same time it prints a recipient's address or to print labels for pre-addressed return envelopes. It will be understood that although the preferred embodiment of the present invention is described with regard to a postage metering system, the present invention is applicable to any value metering system that includes a transaction evidencing.

As used herein, the term personal computer is used generically and refers to present and future microprocessing systems with at least one processor operatively coupled to user interface means, such as a display and keyboard, and storage media. The personal computer may be a workstation that is accessible by more than one user.

The PC-based postage meter 10 includes a personal computer (PC) 12, a display 14, a keyboard 16, and an non-secured digital printer 18, preferably a laser or ink-jet printer. PC 12 includes a conventional processor 22, such as the 80486 and Pentium processors manufactured by Intel, and conventional hard drive 24, floppy drive(s) 26, and memory 28. Electronic vault 20, which is housed in a removable card, such as PCMCIA card 30, is a secure encryption device for postage funds management, digital token generation and traditional accounting functions. PC meter system 10 may also include an optional modem 29 which is located preferably in PC 12. Modem 29 may be used for communicating with a Postal Service or a postal authenticating vendor for recharging funds (**debit** or credit). In an alternate embodiment the modem may be located in PCMCIA card 30.

PC meter system 10 further includes a Windows-based PC software module 34 (Figs. 3 and 4) that is accessible from conventional Windows-based word processing, database and spreadsheet application programs 36. PC software module 34 includes a vault dynamic link library (DLL) 40, a user interface module 42, and a plurality of sub-modules that control the metering functions. DLL module 40 securely communicates with vault 20 and provides an open interface to Microsoft Windows-based application programs 36 through user interface module 42. DLL module 40 also securely stores an indicia image and a copy of the usage of postal funds

of the vault. User interface module 42 provides application programs 36 access to an electronic indicia image from DLL module 40 for printing the postal revenue block on a document, such as an envelope or label. User interface module 42 also provides application programs the capability to initiate remote refills and to perform administrative functions.

PC-based meter system 10 operates as a conventional personal computer with attached printer that becomes a postage meter upon user request. Printer 18 prints all documents normally printed by a personal computer, including printing letters and addressing envelopes, and in accordance with the present invention, prints postage indicia.

The vault is housed in a PCMCIA I/O device, or card, 30 which is accessed through a PCMCIA controller 32 in PC 12. A PCMCIA card is a credit card size peripheral or adapter that conforms to the standard specification of the personal Computer Memory Card International Association. Referring now to Figs. 2 and 3, the PCMCIA card 30 includes a microprocessor 44, redundant non-volatile memory (NVM) 46, clock 48, an encryption module 50 and an accounting module 52. The vault includes an interface 56 that communicates with the host processor 22 through PCMCIA controller 32. The encryption module 50 may implement the NBS Data Encryption Standard (DES) or another suitable encryption scheme. In the preferred embodiment, encryption module 50 is a software module. It will be understood that encryption module 50 could also be a separator device, such as a separate chip connected to microprocessor 44. Accounting module 52 may be EEPROM that incorporates ascending and descending registers as well as postal data, such as origination ZIP Code, vendor identification, data identifying the PC-based postage meter 10, sequential piece count of the postal revenue block generated by the PC-based postage meter 10, postage amount and the date of submission to the Postal Service. As is known, an ascending register in a metering unit records the amount of postage that has been dispensed, i.e., issued by the vault, in all transactions and the descending register records the value, i.e., amount of postage, remaining in the metering unit, which value decreases as postage is issued.

The functionality of DLL 40 is a key component of PC-base meter 10. DLL 40 includes both executable code and data storage area 41 that is resident in hard drive 24 of PC 12. In a Windows environment, a vast majority of applications programs 36, such as word processing and spreadsheet programs, communicate with one another using one or more dynamic link libraries. PC-base meter 10 encapsulates all the processes involved in metering, and provides an open interface to vault 20 from all Windows-based applications capable of using a dynamic link library. Any application program 36 can communicate with vault microprocessor 44 in PCMCIA card 30 through DLL 40.

DLL 40 includes the following software sub-modules. Secure communications sub-module 80 controls communications between PC 12 and vault 20. Transaction captures sub-module 82 stores transaction records in PC 12. Secure indicia image creation and storage sub-module 84 generates an indicia bitmap image and stores the image for subsequent printing. Application interface sub-module 86 interfaces with non-metering application programs and issues requests for digital tokens in response to requests for indicia by the non-metering application programs. Detailed descriptions of PC meter system 10 and the digital token generation process are provided in related U.S. Patent Applications Serial Nos. [Attorney Docket E-421] and [Attorney Docket

E-416] filed concurrently herewith, each of which is incorporated herein in its entirety by reference.

Since printer 18 is not dedicated to the metering function, issued digital tokens may be requested, calculated and stored in PC 12 for use at a later time when, at a user's discretion, corresponding indicia are generated and printed. Such delayed printing and batch processing is described in more detail in co-pending U.S. Patent Application Serial No. [Attorney Docket E-452], which is incorporated herein in its entirety by reference.

Digital Token Generation Process

In accordance with the present invention, when a request for digital token is received from PC 12, vault 20 calculates and issues at least one digital token to PC 12 in response to the request. The issued digital token is stored as part of a transaction record in PC 12 for printing at a later time. In the preferred embodiment of the present invention, the transaction record is stored in a hidden file in DLL storage area 41 on hard drive 24. Each transaction record is indexed in the hidden file according to addressee information. It has been discovered that this method of issuing and storing digital tokens provides an additional benefit that one or more digital tokens can be reissued whenever a token has not been printed or if a problem has occurred preventing a printing of an indicia with the token.

By storing digital tokens as part of transaction records in PC 12 the digital tokens can be accessed at a later time for the generation and printing of indicia which is done in PC 12. Furthermore, if a digital token is lost, i.e., not properly printed on a mailpiece, the digital token can be reissued from DLL 40 rather than from vault 20. The storage of transaction records that include vault status at the end of each transaction provides a backup to the vault with regard to accounting information as well as a record of issued tokens. The number of transaction records stored on hard drive 24 may be limited to a predetermined number, preferably including all transactions since the last refill of vault 20.

Address Mapping

In accordance with the present invention, delivery address information is included in an open metering system token calculation in the following manner. Referring now to Fig. 4, at 300 the entire delivery address is provided to vault 20. The address is supplied in the form of a data string in ASCII code, which includes white spaces, such as the 'space', 'carriage return', 'tap', and 'line feed'. At 302 and 304, the string of ASCII code is preprocessed respectively to remove unnecessary characters from the string and to assign an identical code to certain characters to reduce the chance of misread in the OCR verification process. At 302, all white spaces are deleted from the string of ASCII code except for 'line feed'. At 304, the typical ASCII code space of 128 characters may be further reduced by assigning an identical code to characters that are similar in appearance. For example, 'o', 'O', '0' can be assigned to the code 'o'; '1', 'I', 'l' to the code '1'; '5', '8', 'S' to '5'. The purpose of this conversion is to improve the token verification process which involves OCR reading of the printed delivery address. It will be understood that such preprocessing can be optimized to reduce the ASCII code space from 62 (a-z, A-Z, 0-9) to 32 codes or less.

At 306, the resulting preprocessed string of ASCII code is represented in a table T with n rows of characters with each row having a variable length corresponding to the preprocessed delivery address. $T=\{C.subij.\}$,

where i=0,1,...(n-1);j=1,2,...l.sub(n-1).; and l.subi. is the number of characters in the ith row. At 308, a random number algorithm is applied to postal data, such as piece count, to obtain a 64 bit random number R. The random number R is used to select a random number of characters randomly from the preprocessed ASCII string. To determine the random positions of the address string, one can encrypt the piece count using one of the stored encryption keys in the vault. For example, a single DES encryption produces a 64 bit 'random' number that is divided into groups of bits to select characters for token generation process.

At 310, parameters are calculated from R that are used to select characters from table T. In accordance with the preferred embodiment of the present invention, a set of numbers of smaller precision are selected from R, for example based on the length of the rows. Referring now to Fig. 5, R is divided into two groups. The first group consists of the first three bits that are use to determine the number of characters N to be selected. Since N has a range from 0-7, this means that no character or up to 7 characters can be selected. The remaining bits of R are further divided into consecutive sub-groups of 8 bits. The first N sub-groups are used to identify the characters to be selected for use in the digital token calculation. For each of the N sub-groups, the first three bits represent a row index for table T, and the last five bits represent the character's position in the row. When the number of rows or the number of characters in a row is less than the respective index determined in this manner, the rows or characters in the rows are repeated as necessary to obtain a character for selection. For example, if table T has only 4 rows and the first three digits of a sub-group total 6, then the first two rows are repeated so that a sixth row is available for character selection. Likewise, if only 3 characters exist in a row of table T, the characters are repeated six times when the last five digits of the sub-group total 21.

Referring again to Fig. 4, at 312 the delivery address characters that are picked according to step 310 are provided for the calculation of the digital token.

The present invention provides several benefits for the open system digital token generation process. The amount of data for character recognition is minimized which significantly reduces any chance of for mis-recognitions during the verification process. The random selection of characters from the delivery address makes it virtually impossible for anyone to guess the number of characters used or which characters are used in the digital token generation process.

It will be understood that the present invention is not limited to the mapping of addressee information or to an open postage metering system. The present invention applies to any transaction evidencing system in which a block of information is used to authenticate a document and the information is later scanned from the document in the verification process.

The present invention is suitable for generating a batch of tokens for addressees in a mailing list rather than entering such list of addressees one at a time. The batch of tokens are part of a batch of transaction records, that are indexed in the transaction file in the DLL storage area 41, which are later used to generate indicia images when printing envelopes for the mailing list. Such batch processing would be useful, for example, to production mailers which often have databases of

addresses from which to generate mail. These databases are usually pre-processed and sorted to take advantage of postal discounts and recipient profiles for direct marketing opportunities. The address mapping for each of the addressees would function as described above.

In an alternate embodiment, a PC-based open metering system is part of a network with the vault connected to a server PC and the user requesting postage from a user PC. The token generation process would proceed as previously described except that the vault functions, including token generation, would occur in the server PC or the vault card connected thereto. The server PC also stores a record of all transactions for backup and disaster recovery purposes. The user PC would store the transaction records, including issued tokens, on its hard drive and would generate indicia corresponding thereto. This configuration would allow multiple users to send a letter to the same addressee without the token generation being inhibited. A more detailed description of a network based PC meter system is disclosed in co-pending U.S. Patent Application Serial No. [Attorney Docket E-444], which is incorporated herein in its entirety by reference.

While the present invention has been disclosed and described with reference to a single embodiment thereof, it will be apparent, as noted above that variations and modifications may be made therein. It is, thus, intended in the following claims to cover each variation and modification that falls within the true spirit and scope of the present invention.

In the foregoing, the following attorney docket references indicate the US-applications shown in the following table. All these applications have corresponding European Applications and are hereby incorporated herein by reference:

E-415 Serial No. 08/575,106
E-416 Serial No. 08/575,107
E-417 Serial No. 08/574,746
E-418 Serial No. 08/574,745
E-419 Serial No. 08/575,110
E-420 Serial No. 08/574,743
E-421 Serial No. 08/575,112
E-444 Serial No. 08/575,109
E-452 Serial No. 08/575,104
E-463 Serial No. 08/574,749
E-466 Serial No. 08/575,111
E-462 Serial No. 08/588,499

CLMEN 1. A method of generating a digital token from predetermined information, comprising the steps of:

sending the predetermined information to a digital token generator;

representing the predetermined information in a table format;

applying a random number algorithm to the predetermined information to obtain a random number;

selecting parameters from the random number to select characters from the predetermined information in table format;

selecting a set of characters of the predetermined information in accordance with the selected parameters; and

calculating a digital token using the random number.

2. The method of claim 1 wherein the step of selecting parameters from the random number comprises the steps of:

using the first three bits of the random number to determine the number of characters to be selected from the predetermined information;

dividing the remaining bits of the random number into at least 8 groups of consecutive bits; and

subdividing each of the groups of bits into two subgroups, the first subgroup indicating the row of a selected character and the second subgroup indicating the column of the selected character.

3. The method of claim 2 wherein the step of selecting a set of characters comprises the step of:

repeating a row or column of characters of the predetermined information in table format as necessary whenever a value of one of the first or second subgroups is greater than the number of rows and columns of the predetermined information in table format.

4. A method of generating a digital token for an open metering system, comprising the steps of:

supplying destination address information to a digital token generation process, the destination address data being in the form of an ASCII string

reducing the ASCII string by eliminating certain non-alphanumeric characters;

modifying certain characters in the reduced ASCII string to facilitate OCR processing;

selecting a plurality of characters randomly from the reduced ASCII string to determine random positions in the reduced ASCII string;

mapping the ASCII code of the selected characters to the code of a reduced space using a mapping table; and

including the mapped destination address information in a digital token calculation of the digital token generation process.

5. The method of claim 4 wherein the step of selecting a plurality of characters randomly comprises the steps of:

applying a random number algorithm to the destination address information to obtain a random number;

using the first three bits of the random number to determine the number of characters to be selected from the predetermined information;

dividing the remaining bits of the random number into at least 8 groups of consecutive bits; and

subdividing each of the groups of bits into two subgroups, the first subgroup indicating the row of a selected character and the second subgroup indicating the column of the selected character.

6. The method of claim 5 wherein the step of selecting a plurality of characters randomly comprises the further step of:

repeating a row or column of characters of the predetermined information in table format as necessary whenever a value of one of the first or second subgroups is greater than the number of rows and columns of the predetermined information in table format.